

IN THE CLAIMS

Please amend the claims to read as follows:

Listing of Claims

1-9. (Canceled).

10. (New) A transmitting apparatus comprising:

a baseband signal former that makes baseband signals in varying channel matrix patterns in accordance with data;

a radio section that converts the baseband signals to radio signals; and

a transmit antenna that transmits the radio signals, wherein:

the transmit antenna comprises a plurality of antennas;

the baseband signal former comprises a space-time block encoder that changes a pattern of a space-time block code in accordance with transmission data; and

the space-time block encoder comprises:

    a first modulator that makes a first transmission symbol from the transmission data;

    a second modulator that makes a second transmission symbol from the transmission data; and

    a signal selector that receives as input the first and second transmission symbols, outputs to the plurality of antennas the first and second transmission symbols and signals representing complex conjugates of said first and second symbols, by changing an order

of said first and second symbols and the complex conjugate signals in accordance with transmission data, and makes a space-time block code signal.

11. (New) The transmitting apparatus of claim 10, further comprising:

a multi-carrier modulator that assigns a signal made in the space-time block encoder to a plurality of subcarriers, wherein:

the space-time block code signal is subjected to multi-carrier modulation and transmitted from the plurality of antennas.

12. (New) A communication system having a transmitting apparatus and a receiving apparatus, the receiving apparatus for receiving a space-time block code signal from the transmitting apparatus, wherein:

the transmitting apparatus comprises:

a baseband signal former that makes baseband signals in varying channel matrix patterns in accordance with data;

a radio section that converts the baseband signals to radio signals; and

a transmit antenna that transmits the radio signals; wherein:

the transmit antenna comprises a plurality of antennas;

the baseband signal former comprises a space-time block encoder that changes a pattern of the space-time block code in accordance with transmission data;

the space-time block encoder comprises:

a first modulator that makes a first transmission symbol from first transmission data;

a second modulator that makes a second transmission symbol from second transmission data; and

a signal selector that receives as input the first and second transmission symbols, outputs to the plurality of antennas the first and second transmission symbols and signals representing complex conjugates of said first and second symbols, by changing an order of said first and second symbols and the complex conjugate signals in accordance with third transmission data, and makes the space-time block code signal; and  
the receiving apparatus comprises:

a channel estimator that finds a channel estimation value between the transmitting antenna and a receiving antenna;

a channel matrix estimator that estimates and outputs the third transmission data by estimating a pattern of the space-time block code using a channel matrix represented by the channel estimation value and a plurality of slots of received data; and

a detector that estimates the first and second transmission data using the channel estimation value, the plurality of slots of received data, and the third transmission data.

13. (New) A transmission method comprising the steps of:

making baseband signals in varying channel matrix patterns in accordance with data; converting the baseband signals to radio signals; and  
transmitting the radio signals from a plurality of antennas, wherein:

the step of making the baseband signals comprises a space-time block encoding step of changing a pattern of a space-time block code in accordance with transmission data; and

the space-time block encoding step comprises the steps of:

making a first transmission symbol from the transmission data;

making a second transmission symbol from the transmission data; and

receiving as input the first and second transmission symbols, outputting to the plurality of antennas the first and second transmission symbols and signals representing complex conjugates of said first and second symbols, by changing an order of said first and second symbols and the complex conjugate signals in accordance with transmission data, and making a space-time block code signal.

14. (New) The transmission method according to claim 13, further comprising:

a step of assigning a signal made in the space-time block encoding step to a plurality of subcarriers, wherein:

the space-time block code signal is subjected to multi-carrier modulation and transmitted from the plurality of antennas.